The Brazilian Sugar Industry: Recent Developments

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Abstract: Brazil is among the world leaders in the production of sugarcane, sugar, and ethanol (fuel alcohol). In addition, it is among the most efficient of all major sugar producers. The country also produces and exports a diverse number of sugar products. Since Brazil can produce either sugar or ethanol from sugarcane, it is one of the few countries that can adjust sugar production rapidly to potential world sugar shortfalls and high international prices. In 2000, less than half of its cane production was ground for sugar.

Keywords: Brazil, sugarcane, sugar, ethanol, production, exports, prices.

Introduction

Brazilian sugar and ethanol are taking on considerable importance as negotiations of the Free Trade Area of the Americas (FTAA) get underway. The U.S. sugar program and import tariffs on ethanol are important bargaining points to Brazil. As one of the world's largest sugarcane producers, Brazil has considerable influence over the international sugar market. Brazil is also one of only a few countries that produce ethanol from sugarcane. The balance between ethanol and sugar production in Brazil immediately affects international sugar prices. Nearly 4 years ago, Brazil produced so much sugar that sugar prices in the international market fell to fewer than 5 cents per pound. Production in 2000/01 was scaled back because of adverse weather, but is expected to rebound in 2001/02. This paper looks at sugarcane production trends in Brazil. Changes over time in sugar and ethanol production, consumption, and trade, will also be examined, with a view of prospects for trade and international prices in the near future.

Brazilian Sugar Production

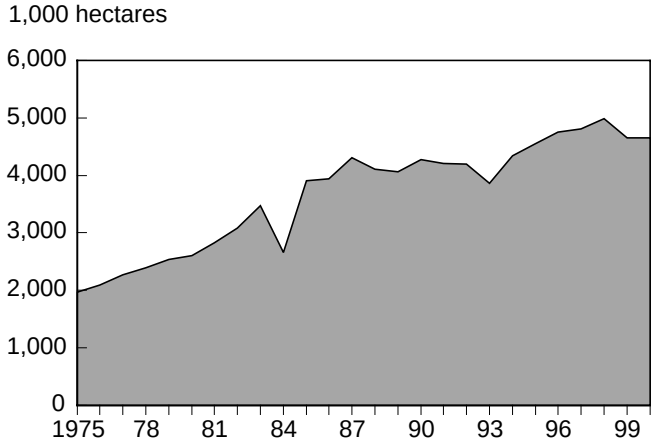
Brazil vies with India to be the world's largest producer of raw sugar. In 2001/02, Brazil is forecast to produce 272 million metric tons (MMT) of sugarcane, while India is expected to produce 300 MMT. Brazil produces both raw sugar and ethanol from its sugarcane. As a result, it is one of the more flexible countries in responding to changes in the international sugar market.

Brazil's sugarcane production hit its peak in 1998/99 at 320 MMT. The 2001/02 crop is expected to rebound 6 percent from last year's reduced crop, but it will not approach the record because of the smaller harvested area and declines in crop management during the past 3 years. (fig. B-1).

Sugarcane production is concentrated in the Center-South region. Moreover, cane area is expanding into the state of Sao Paulo, which has traditionally grown citrus. Sugarcane replanting has also occurred at an unusually higher pace. The average renewal rate is approximately 20 percent, compared with the usual rate of 15 to 16 percent of total sugarcane area. The yields from sugarcane (measured by total reducing sugars) have also increased with the development of new and more productive sugarcane varieties. The Northeast region produces less sugar. However, because of the economic importance of the sugar industry to the region, the central government allocates Brazil's total annual premium priced U.S. sugar import quota allocation to the Northeast. Higher cost growers in the Northeast region receive a small subsidy for production.

Figure B-1

Brazil: Sugarcane harvested area



Source: Economic Research Service, USDA.

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Figure B-2

Brazil: Sugarcane production area

Regional Statistics

	Center-South	Northeast
Sugarcane production	75 - 80%	20 - 25%
Raw sugar production	60 - 65%	35 - 40%
Ethanol production	80 - 85%	15 - 20%
Sugar for export	25 - 30%	70 -75%

Source: World Agricultural Outlook Board, USDA.

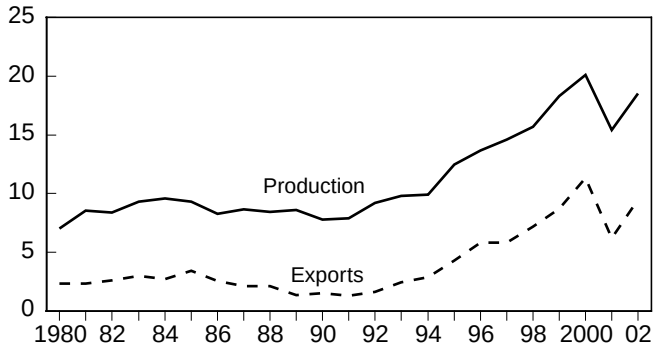
Brazil is Among the Top Cane Sugar Producers

Although nearly half of Brazil's cane is grounded for ethanol, Brazil is consistently among the world's top three sugar producers. Brazil has two distinct sugar producing regions—the Center-South and North-Northeast, with important differences in agronomic and government policy orientation. The Center-South region is dominated by the state of Sao Paulo, which alone accounts for 60 percent of the country's sugarcane production. This region supplies three-quarters of the country's cane, over 70 percent of the sugar output, and approximately 90 percent of the ethanol. The harvest season is normally May through November, although cane cutting in some years has begun in mid-April to ease tight ethanol supply situations. The North-Northeast accounts for less than 20 percent of Brazil's sugarcane production, approximately 25 to 30 percent of the country's sugar output, and about 10 percent of its ethanol. The states of Pernambuco and Alagoas dominate production, accounting for 80 percent of regional sugar and ethanol production. The harvest season is normally September through April and because of hilly terrain and poorer soils, production in this region is less mechanized than in the Center-South. Both field and factory costs in this region are higher than in the Center-South; however, the cost differential between the regions has narrowed considerably.

Production of processed sugar rebounded from a low of 17.1 MMT in 2000/01, to 18.5 MMT in 2001/02, but it will not reach the 1999/2000 record of 21.1 MMT. For cane sugar production to increase, milling capacity in the Center-South region would require additional investment. Mills already

Figure B-3
Brazil: Production and exports of sugar

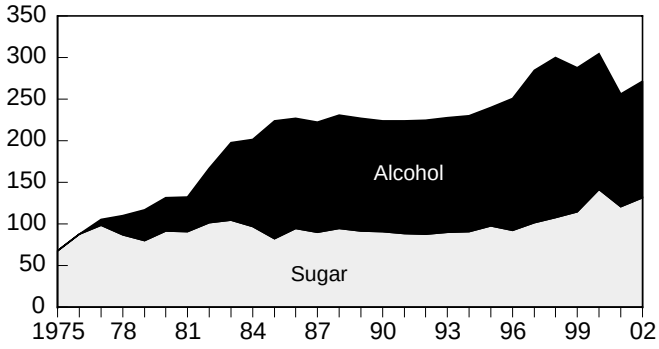
Mil. metric tons



Source: Economic Research Service, USDA.

Figure B-4
Sugarcane production for sugar and alcohol

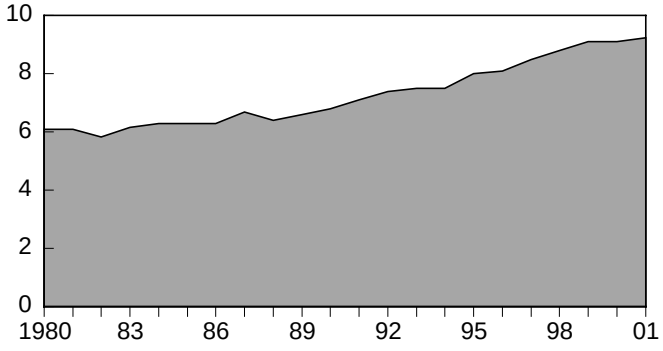
Mil. metric tons



Source: Economic Research Service, USDA.

Figure B-5
Brazil: Total sugar consumption

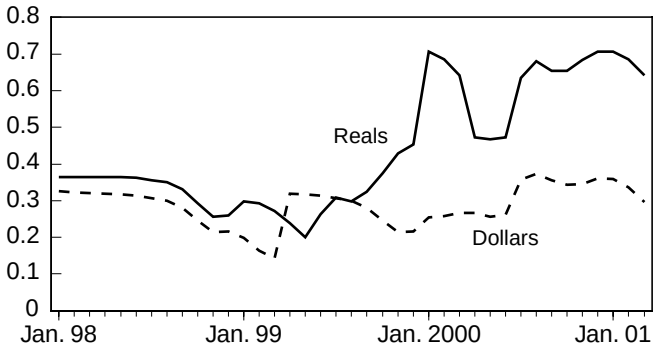
Mil. metric tons



Source: Economic Research Service, USDA.

Figure B-6
Price of anhydrous ethanol for fuel in Brazil

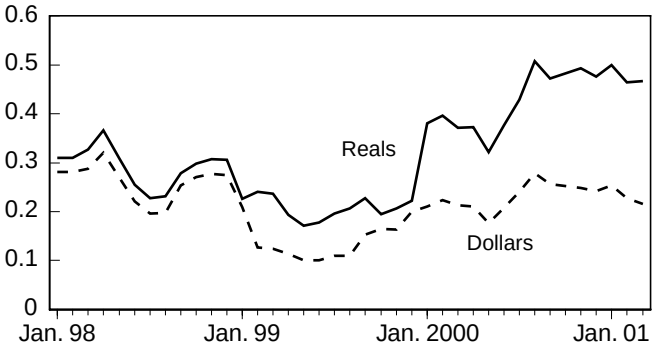
Liters



Source: Foreign Agricultural Service, USDA.

Figure B-7
Centrifugal sugar prices on the domestic market, Brazil

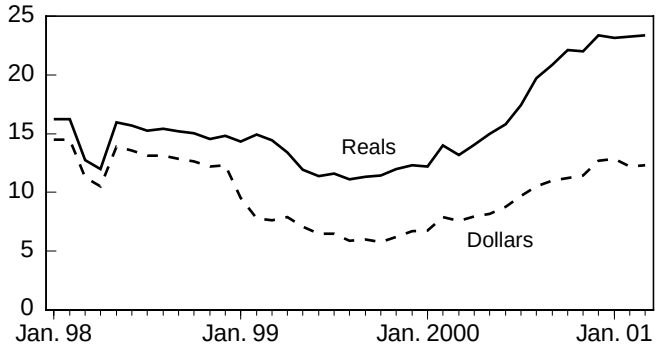
Kilograms



Source: Foreign Agricultural Service, USDA.

Figure B-8
Brazilian sugarcane price to farmers, Sao Paulo

Liters



Source: Informacoes Economicas, Sao Paulo.

have a long production season, operating from April to December. Production costs in the Center-South region are low in comparison with other countries, reflecting efforts to improve efficiency in all phases of the production process. The continued depreciation in the value of the *real* (Brazil's currency) makes Brazil even more competitive in the international sugar market. The value of the *real* relative to the U.S. dollar has declined by more than 50 percent from a year ago.

Ethanol Has Been the Primary Use of Cane Sugar

Brazil's interest in ethanol production dates back to the petroleum crisis of the early 1970s, when petroleum deficiencies forced Brazil to find alternative sources of fuel in order to avoid an economic slowdown. Brazil was innovative by turning to the biomass of sugarcane as an alternative energy source and began developing its ethanol industry, mostly through government support and control. As international petroleum prices declined, the government relinquished most of its control; with Petrobras, the state oil company, ending its monopoly over ethanol distribution in the late 1990s. Currently, ethanol production is regulated by government decree. Each year, a Presidential Decree sets a range (currently 20 to 24 percent). The actual percent is determined by the Alcohol Interministerial Committee (CIMA) comprised of representatives of the Ministry of Agriculture, Ministry of Finance, the Ministry of Mines and Energy, and the Ministry of Industrial Development and Commerce. The Brazilian Government set total alcohol content in the gasoline at 22 percent as of May 31, 2001. The production of cane sugar is a residual from ethanol production, and, in most cases, sugar and ethanol are produced in the same mills. Most of the ethanol is produced in the Center-South. Ethanol requirements are expected to increase in the near future as international petroleum prices increase.

The future level of sugar exports depends heavily on the fate of the domestic alcohol industry, which has no government production limits and is the major driver of sugarcane production. Total alcohol production for 2000/01 is anticipated to be 10.6 billion liters (5.6 billion liters of anhydrous alcohol and 5 billion liters of hydrated alcohol). The demand for ethanol is complicated because it is segmented due to cross trends between hydrous ethanol and anhydrous ethanol uses. Because of the petroleum crisis of the early 1970s, Brazil turned to vehicles that use hydrous ethanol and the demand for fuel peaked in 1989. As a result the demand for hydrous alcohol has declined. Anhydrous ethanol, which is blended with gasoline at either a 20/80 to 24/76 ratio, has become more popular in recent years. High-energy prices in 2001 have made ethanol a more attractive alternative, pushing a greater proportion of the blends to 22 percent. The increasing use of anhydrous alcohol in gasoline surpassed the declining use of hydrous ethanol in 2000. Because of these trends, ethanol demand will likely be 9 to 10 billion liters in the near future, but well below the record of 1996. The blending of anhydrous ethanol with diesel fuel, where the technical incorporation rate may be up to 4 percent, could boost ethanol demand.

Ethanol prices were liberalized on February 1, 1999, and subsidies paid to hydrous alcohol producers were reduced from 0.98 *reals* per liter to 0.45 *reals* per liter. To redress the imbalance between supply and demand for alcohol at the time, the Brazilian Government immediately authorized Petrobas to purchase 400 million liters. The National Fuel Agency also bought 100 million liters. In addition, the Brazilian Government has the prerogative to change the alcohol/gasoline blend and the ban on methyl-tertiary-butyl-ether (MTBE).

Prices for both anhydrous and hydrated fuel alcohols have declined in *real* and dollar terms. As of September 2001, anhydrous fuel alcohol was priced at 23 cents per liter, 4 percent lower than a year ago in *real* terms and 34 percent lower in U.S. dollar terms. Likewise, hydrated fuel alcohol prices at 26 cents per liter are 7 percent lower in *real* terms and 36 percent lower in U.S. dollar terms than they were a year ago.

Brazil is a Large Consumer of Sugar

With the fifth largest world population and a long tradition of high per capita sugar consumption, Brazil is one of the world's largest consumers of sugar. Brazil ranks fifth as a sugar-consuming nation, with annual consumption measured at 9.45 million tons. Per capita consumption is about 50 kilograms of sugar per year and has increased nearly 10 percent in recent years as more sugar is used in processed products.

Consumption of sugar largely reflects Brazil's population growth. Food manufacturers, including those that produce carbonated drinks, chocolate, ice cream, crackers, and pasta (massas) account for approximately 35 to 45 percent of domestic sugar consumption. The remaining 55 to 65 percent is direct consumption. Given the economic importance of sugar in the national diet, the Brazilian Government has regularly given priority to the industry to ensure that production is sufficient to cover consumers' needs. Sugar for export, while vital to the national economy, has been secondary.

Sugar retail prices in September 2001 were 23.53 *reals* per 50-kilogram bag, slightly lower than the previous year and have hovered at their present level since August 2000. In dollar terms, sugar prices at 17 cents a kilogram, are 32 percent lower than a year ago.

Brazil is Also a Large Sugar Exporter

Brazil exports approximately 100,000 to 200,000 metric tons to the United States, but has a much larger role in the world market. In 2000, Brazil exported about 7.7 MMT of sugar, raw value. Russia and Nigeria were the largest

importers of Brazilian sugar and sugar products. In 2001, Brazil is forecast to export about 9.5 MMT.

There are major factors that make Brazil a strong competitor in the world market. In 1999, freight rates fell in the wake of the Asian financial meltdown, making shipping to distant Asian markets such as South Korea, Malaysia, and Indonesia more attractive. Looming in the horizon are increased freight costs in 2002. The continued devaluation of its floating currency increases the attractiveness of Brazilian sugar. Lax fiscal discipline forced Brazil to change its currency regime from a crawling-peg currency to free-floating in January 1999. After the 60-percent devaluation of the *real* in early 1999, currency fluctuations subsided for nearly 2 years. In early 2001, the real began to weaken again. By mid-September 2001, the currency had devalued to 2.67 *reals* per U.S. dollar or about 36 percent since January 1, 2001. The devaluation also cushioned the effect of the fall of dollar-denominated sugar prices, making them less apparent than in other countries with stronger currencies.

Brazil is enhancing its export ability by improving transportation and loading facilities. In 1999, four new automated sugar terminals began operating in the southern port of Santos. This has reduced costs and speeded up the flow of exports to the world market. Brazil is the second largest quota holder to the U.S. market and ships that U.S. sugar quota from the northern ports of Maceio and Recife. If the Brazilian sugar industry processes record amounts of sugar and attempts to export them, however, it puts enough pressure on the international market that world sugar prices might fall, adding to millers' financial difficulties. World prices will have to rebound for Brazilian sugar mills to be profitable and increase exports.

Conclusion

Brazil is among the world's largest producer and exporter of sugar and has a significant effect on world sugar prices. Brazilian Government policies supporting economic liberalization are likely to stimulate greater sugar production and result in increased Brazil sugar export availability. Brazilian sugar can be expected to remain competitive in the world market because of increased internal efficiencies as Brazil deregulates its industry, modernizes its ports, and reduces its transportation costs from the mill to the port. However, the main determinant of growth in sugar output and exports is likely to be government policies affecting production and use of ethanol. These policies may be affected by trends in international prices of crude oil, as well as by Brazil's approach to environment issues such as air quality.

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